

Authorizations and Permits for Protected Species (APPS)

File #: 1345-7R

Title: Renew: Warmwater Fish Species Monitoring

Applicant Information

Title: ESA Response Biologist

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Project Information

File Number: 1345-7R

Application Status:

Application Complete

Project Title: Renew: Warmwater Fish Species Monitoring

Project Status: Renewal

Previous Federal or

State Permit: <u>1345 - 6A</u>

Permit • ESA Section 10(a)(1)(A) permit (Pacific fish)

Requested: Where will

Washington (including Columbia River and offshore waters)

activities occur?

State Project will be carried out by WDFW

department of fish and

game/wildlife:

Research

Timeframe: Start: 04/16/2012 **End:** 12/31/2016

Sampling **Duration:**

WDFW monitors warmwater fish species populations year-round, although most surveys are scheduled in for spring (April through June) and fall (September through November) sampling windows. These activities will **Season/Project** continue indefinitely into the future.

Abstract:

As part of its mandate to manage fisheries in state waters, WDFW monitors warmwater fish populations and conducts research to manage these species sustainably while striving to protect native species. For warmwater management, ESA listed species that could be affected include Puget Sound steelhead and Chinook, Lower Columbia River Chinook, Lower Columbia River steelhead, and Lower Columbia River coho. The purpose of warmwater survey work is to provide stock assessment to improve management of inland game fish communities. One use of the data is to analyze the appropriateness of regulations, e.g. if a specific bass population is, too large, we might recommend increased harvest to reduce potential impacts on listed salmonids.

Locations include inland waters throughout the state. Each individual survey lasts one to five days, depending on the scope of the project. As an example, Crocker Lake in Jefferson County was rehabilitated in 1997 to eliminate illegally introduced northern pike. Each year since then, we have done a one-night boat electrofishing survey to monitor for the presence of introduced species and the status of the native, resident juvenile coho salmon.

In many cases, surveys gather data to improve management of warmwater species within the parameters of the Agency's Conservation Initiative, which is to protect native species while providing recreational opportunity. Capture methods and collection equipment include boat electrofishing; fyke nets (live trap); and gillnets. Any listed species will be handled with the utmost care and released as soon as possible after identification. Standard data collection for other species includes length, weight, scale samples, and diet samples (lavage). All fish are placed in aerated live wells for analysis and then released alive. In general, these fish will only be measured prior to release.

Project Description

Purpose:

The WDFW Warmwater Enhancement Program has been conducting warmwater game fish stock assessment surveys since 1978 to provide fish managers with the necessary information to effectively manage the state's warmwater game fish populations. The data collected in these surveys provide biologists with the ability to evaluate warmwater game fish population changes over time by ensuring continuity with prior years' data, and to determine whether warmwater populations are functioning properly with regard to angler harvest, fishing regulations, species interactions, and management strategies. For example, some warmwater species prev upon ESA listed juvenile salmonids and therefore these surveys contribute to our understanding of threats to ESA listed species. Multiple gear types are used, including boat electrofishing, trap nets, and gill nets, to provide a more thorough and informative dataset.

Description:

Warmwater fish surveys are conducted primarily in May, June, August, September, and October, using standardized sampling methods as outlined in Bonar et al. 2000 (attached). These surveys use three gear types - boat electofishing, gill nets, and fyke nets. The use of multiple gear types produces a sample of fish that more accurately reflects the actual fish populations and communities and helps minimize the various gear biases inherent to all fish sampling techniques. This combination of gears is deployed at randomly selected locations along the shorelines of lakes or streams where warmwater fish such as bass, perch, sunfish, catfish, and walleye are commonly found. Fish are collected, placed in an aerated live well for recovery and to minimize stress. They are then measured, weighed and released. In addition, scales are collected from a subsample of fish for age and growth analysis.

The intended target species of these surveys are warmwater game fish only, so the collection of any ESA listed salmonids is incidental. Surveys are scheduled to miminize the potential for interaction with listed salmonids, particularly adult salmonids. The habitat requirements for listed salmonids are inherently different than the habitat requirements for warmwater game fish, which further limits the potential for interactions with listed salmonids. Where habitat overlap does occur, such as in large lakes with multiple habitat types and anadromous access, every effort is made to schedule the survey to minimize impacts. In order to properly survey large bodies of water, the Warmwater Enhancement Program occasionally conducts "All-Hands Surveys", which consists of up to eight electrofishing boats working separate areas of a large water body simultaneously. This sampling approach attempts to collect fish from a large area of one lake or the entire lake at the same time, and thus these surveys produce a valuable snapshot in time of the lake's fish community that cannot be duplicated using less intensive survey methods (e.g. a single electrofishing boat that attempts to cover a large portion or the entire lake over a much longer period of time). The All-Hands Surveys require extensive planning, coordination, and financial support, therefore the take allocations for listed species must be sufficient to ensure that these projects can be completed when they are initiated. Waters where All Hands

Surveys may take place include, but are not limited to: Lake Washington, Lake Samish, Lake Sammamish, Merwin Lake, Mayfield Lake, Riffe Lake, Swift Reservoir, and Silver Lake in Cowlitz County.

Supplemental Information

Status of Species:

No listed species are targeted in any of the work covered by this application. All takes, both lethal and non-lethal, would be inadvertant bycatch.

Methods:

Warmwater fish surveys are conducted primarily in May, June, August, September, and October, using standardized sampling methods as outlined in Bonar et al. 2000 (attached). These surveys use three gear types: boat electofishing, gill nets, and fyke nets.

Standard boat electrofishing gear consists of Smith-Root SR-16 or SR-18 electrofishing boats with 5.0 GPP pulsator units. The gear is fished using pulsed DC (120 Hz, 250-350v) current at 3-4 amps power. The cathodes electrodes are six-dropper stainless steel wire "spider" array on each boom While electrofishing, the boat is maneuvered through shallow water (less than 6 feet deep) with the pedal down continuously for a total of 600 seconds per section. Fish are netted and placed into an aerated live well.

Gill and fyke net locations are randomly chosen. The nets are set at dusk and retrieved the next morning. Fish from the different nets and set sites are processed separately but all are immediately placed into an aerated live well before measuring and weighing. Gill nets are 150' long x 8' deep, variable mesh monofilament with the following mesh size and panel length: 0.5" square -25', 0.75" square -25', 1" square -50', 2" square -50'. The fyke nets are 4' diameter hoops with two 25' wings and up to a 100' lead barrier. The mesh size is 0.25".

Fish are weighed, measured for length, and scales are taken from a subsample of warmwater game fish. Fish are allowed to recover and are returned alive to the area from which they were netted. Fish that do not recover are returned to the water for nutrient enhancement. Special attention is paid to ESA listed species, and they are returned to water as quickly as possible, or as soon as they recover, minimizing handling to reduce stress.

Lethal Take:

Not Applicable

Anticipated Effects on Animals:

In McMichael et al. 1998, injury rate for captured salmonids less than 250 mm in length was 1.2% for O. mykiss. Longer than 250 mm it was 27.7%. Injuries were detected by X-rays and necropsies so these rates are therefore considered an absolute percent of injury (both severe and slight) and not merely a percent of more serious, externally visible injuries. McMichael et al. (1998) used different pulsator settings than those used by WDFW. They used a pulsator frequency setting of 30 Hz, a voltage of 450, and amperage of 7, while this study uses a frequency setting of 120 Hz, a voltage of 250-350 and amperage of 3-4. The lower voltage and amperage markedly reduces injuries to fish. J. Johnson estimated salmonid capture injury rates for fish longer than 250 mm to be about 60% at boat electrofishing settings similar to those used during this study's warmwater surveys (Smith-Root, Inc., pers. comm.). Johnson's studies measured higher peak power densities than those measured on WDFW boats at Silver Lake in 1999.

Measures to Minimize Effects to Listed Species:

Surveys are timed to minimize takes of salmonids and electrofishing will not occur in a section of water if adult salmonids are observed. Surveys of warmwater fish in rivers are usually conducted in the backwater sloughs, oxbow lakes, and ponds, rather than in the main channel. Survey timing, warmer water temperatures, and limiting sampling to shallow shoreline sections minimizes the number of resident and anadromous salmonids taken with boat electrofishing gear. Over the history of this program, these measures have proven to be very effective in avoiding interactions with listed salmonids, as evidenced by the low

All boat electrofishing drivers have been certified through courses by either Smith Root, Inc. or the United States Fish and Wildlife electrofishing course. We will follow the guidance and training regimen described in the NMFS 2000 Electrofishing Guidelines (http://www.nwr.noaa.gov/ESA-Salmon-Regulations-Permits/4d-Rules/upload/electro2000.pdf)

Resources Needed to Accomplish Objectives:

The warmwater program consists of four regional teams with two biologists each, and two headquarters staff. Field equipment consists of four Smith-Root electrofishing boats, six full size pickup trucks, a minimum of 16 fyke nets, several dozen experimental gill nets, and sufficient sundry gear to conduct field surveys. The program is funded by a pre-determined percentage of WDFW fishing license sales, as established by legislation.

Disposition of Tissues:

Not Applicable

take numbers reported each year.

Public Availability of Product/Publications:

Warmwater survey reports are available at the WDFW website, http://wdfw. wa.gov

Federal Information

Federal Agency Type Authorization Date Signed Expiration Listing Units/Stocks Comments

Number and Title Date Covered

U.S. Fish and Wildlife Service (FWS) Section 7 Consultation (Biological Opinion) (6007.2100) Revised Section 7 Programmatic Consult 02/14/2000 N/A

Location/Take Information

Location

Research Area: Pacific Ocean **State:** WA **Stream Name:** All major lakes, rivers, and tributaries throughout Washington state **Location Description:** Major lakes, rivers, and tributaries throughout the state of Washington.

Take Information

Line Ve	r Species	Listing Unit/Stock	Production /Origin	Life Stage	Sex	Expected Take	Indirect Mort	Take Action	Observe /Collect Method Procedure	Run	Transport Record	Begin Date	End Date
1	Salmon, Chinook	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Gill	Mixed	N/A	4/16/2012	12/31/2016
2	Salmon, Chinook	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Gill	Mixed	N/A	4/16/2012	12/31/2016
3	Salmon, Chinook	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Fyke	Mixed	N/A	4/16/2012	12/31/2016
4	Salmon, Chinook	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Fyke	Mixed	N/A	4/16/2012	12/31/2016
5	Salmon, Chinook	Lower Columbia River (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Gill	Mixed	N/A	4/16/2012	12/31/2016
6	Salmon, Chinook	Lower Columbia River (NMFS Threatened)	Natural	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Gill	Mixed	N/A	4/16/2012	12/31/2016
7	Salmon, Chinook	Lower Columbia River (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Fyke	Mixed	N/A	4/16/2012	12/31/2016
8	Salmon, Chinook	Lower Columbia River (NMFS Threatened)	Natural	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Fyke	Mixed	N/A	4/16/2012	12/31/2016
9	Salmon, Chinook	Lower Columbia River (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed	N/A	4/16/2012	12/31/2016
10	Salmon, Chinook	Lower Columbia River (NMFS Threatened)	Natural	Juvenile	Male and Female	25	2	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed	N/A	4/16/2012	12/31/2016
11	Salmon, Chinook	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed	N/A	4/16/2012	12/31/2016
12	Salmon, Chinook	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	2	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed	N/A	4/16/2012	12/31/2016
13	Salmon, Chinook	Puget Sound (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed	N/A	4/16/2012	12/31/2016
14	Salmon, Chinook	Puget Sound (NMFS Threatened)	Natural	Juvenile	Male and Female	25	2	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed	N/A	4/16/2012	12/31/2016
15	Salmon, Chinook	Puget Sound (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Fyke	Mixed	N/A	4/16/2012	12/31/2016
16	Salmon, Chinook	Puget Sound (NMFS Threatened)	Natural	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Fyke	Mixed	N/A	4/16/2012	12/31/2016
17	Salmon, Chinook	Puget Sound (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Gill	Mixed	N/A	4/16/2012	12/31/2016
18	Salmon, Chinook	Puget Sound (NMFS Threatened)	Natural	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Gill	Mixed	N/A	4/16/2012	12/31/2016

19	Salmon, Chinook	Puget Sound (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
20	Salmon, Chinook	Puget Sound (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
21	Salmon, Chinook	Puget Sound (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
22	Salmon, Chinook	Puget Sound (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
23	Salmon, Chinook	Puget Sound (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed N/A	4/16/2012	12/31/2016
24	Salmon, Chinook	Puget Sound (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	2	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed N/A	4/16/2012	12/31/2016
25	Salmon, coho	D Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
26	Salmon, coho	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
27	Salmon, coho	Lower Columbia River (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
28	Salmon, coho	Lower Columbia River (NMFS Threatened)	Natural	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
29	Salmon, coho	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
30	Salmon, coho	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
31	Salmon, coho	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed N/A	4/16/2012	12/31/2016
32	Salmon, coho	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	2	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed N/A	4/16/2012	12/31/2016
33	Salmon, coho	Lower Columbia River (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
34	Salmon, coho	Lower Columbia River (NMFS Threatened)	Natural	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
35	Salmon, coho	Lower Columbia River (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Electrofishing, Boat	N/A N/A	4/16/2012	12/31/2016
36	Salmon, coho	Lower Columbia River (NMFS Threatened)	Natural	Juvenile	Male and Female	25	2	Capture/Handle/Release Fish	Electrofishing, Boat	N/A N/A	4/16/2012	12/31/2016
37	Steelhead	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed N/A	4/16/2012	12/31/2016
38	Steelhead	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	2	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed N/A	4/16/2012	12/31/2016

39	Steelhead	Lower Columbia River (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed N/A	4/16/2012	12/31/2016
40	Steelhead	Lower Columbia River (NMFS Threatened)	Natural	Juvenile	Male and Female	25	2	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed N/A	4/16/2012	12/31/2016
41	Steelhead	Lower Columbia River (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
42	Steelhead	Lower Columbia River (NMFS Threatened)	Natural	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
43	Steelhead	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
44	Steelhead	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
45	Steelhead	Lower Columbia River (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
46	Steelhead	Lower Columbia River (NMFS Threatened)	Natural	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
47	Steelhead	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
48	Steelhead	Lower Columbia River (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
49	Steelhead	Puget Sound (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
50	Steelhead	Puget Sound (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
51	Steelhead	Puget Sound (NMFS Threatened)	Listed Hatchery Adipose Clip	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
52	Steelhead	Puget Sound (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
53	Steelhead	Puget Sound (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
54	Steelhead	Puget Sound (NMFS Threatened)	Natural	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Fyke	Mixed N/A	4/16/2012	12/31/2016
55	Steelhead	Puget Sound (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed N/A	4/16/2012	12/31/2016
56	Steelhead	Puget Sound (NMFS Threatened)	Natural	Juvenile	Male and Female	25	2	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed N/A	4/16/2012	12/31/2016
57	Steelhead	Puget Sound (NMFS Threatened)	Natural	Adult	Male and Female	2	0	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016
58	Steelhead	Puget Sound (NMFS Threatened)	Natural	Juvenile	Male and Female	25	1	Capture/Handle/Release Fish	Net, Gill	Mixed N/A	4/16/2012	12/31/2016

59	Steelhead	Puget Sound (NMFS	Listed Hatchery	Adult	Male and	2	0	Capture/Handle/Release	Electrofishing,	Mixed N/A	4/16/2012 12/31/2016
		Threatened)	Adipose Clip		Female			Fish	Boat		
60	Steelhead	Puget Sound (NMFS Threatened)	Listed Hatchery Adipose Clip	Juvenile	Male and Female	25	2	Capture/Handle/Release Fish	Electrofishing, Boat	Mixed N/A	4/16/2012 12/31/2016

NEPA Checklist

1) If your activities will involve equipment (e.g., scientific instruments) or techniques that are new, untested, or otherwise have unknown or uncertain impacts on the biological or physical environment, please discuss the degree to which they are likely to be adopted by others for similar activities or applied more broadly.

N/A

2) If your activities involve collecting, handling, or transporting potentially infectious agents or pathogens (e.g., biological specimens such as live animals or blood), or using or transporting hazardous substances (e.g., toxic chemicals), provide a description of the protocols you will use to ensure public health and human safety are not adversely affected, such as by spread of zoonotic diseases or contamination of food or water supplies.

N/A

3) Describe the physical characteristics of your project location, including whether you will be working in or near unique geographic areas such as state or National Marine Sanctuaries, Marine Protected Areas, Parks or Wilderness Areas, Wildlife Refuges, Wild and Scenic Rivers, designated Critical Habitat for endangered or threatened species, Essential Fish Habitat, etc. Discuss how your activities could impact the physical environment, such as by direct alteration of substrate during use of bottom trawls, setting nets, anchoring vessels or buoys, erecting blinds or other structures, or ingress and egress of researchers, and measures you will take to minimize these impacts.

Boats are launched at developed boat ramps, therefore ingress and egress impacts to the physical environment are minimal. Although electrofishing temporarily alters electron orientation within the water column, it does not result in permanent environmental damage. Setting and retrieving fyke and gill nets does not result in environmental damage to the physical habitat. Though these gears do not damage the physical environment in the manner we will use them, they may result in harm to individual fish.

4) Briefly describe important scientific, cultural, or historic resources (e.g., archeological resources, animals used for subsistence, sites listed in or eligible for listing in the National Register of Historic Places) in your project area and discuss measures you will take to ensure your work does not cause loss or destruction of such resources. If your activity will target marine mammals in Alaska or Washington, discuss measures you will take to ensure your project does not adversely affect the availability (e.g., distribution, abundance) or suitability (e.g., food safety) of these animals for subsistence uses.

N/A

5) Discuss whether your project involves activities known or suspected of introducing or spreading invasive species, intentionally or not, (e.g., transporting animals or tissues, discharging ballast water, use of equipment at multiple sites). Describe measures you would take to prevent the possible introduction or spread of non-indigenous or invasive species, including plants, animals, microbes, or other biological agents.

Electrofishing boats are inspected for aquatic vegetation upon leaving the water, and are washed between deployments into different water bodies to minimize the potential for transfer of invasive species.

Project Contacts

Responsible Party: Charmane Ashbrook

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Primary Contact: Charmane Ashbrook
Principal Investigator: Bruce Bolding

Other Personnel:

Name Role(s)

Bill Baker Co-Investigator Aaron Bosworth Co-Investigator Jim Byrne Co-Investigator Co-Investigator Steve Caromile Adam Couto Co-Investigator Marc Divens Co-Investigator Chris Donley Co-Investigator Mark Downen Co-Investigator **Daniel Garrett** Co-Investigator Stanley Hammer Co-Investigator Chad Jackson Co-Investigator Stacie Kelsey Co-Investigator Randall Osborne Co-Investigator Marc Petersen Co-Investigator Michael Schmuck Co-Investigator Justin Spinelli Co-Investigator John Weinheimer Co-Investigator

Attachments

Certification of Identity - P16346T11Signature authentification sheet 1345-7R.pdf (Added Oct 17, 2011)

Contact - Bruce Bolding: C4424T5Bolding resume.pdf (Added Apr 20, 2011)

Contact - Mark Downen: C4553T5Downen Resume 2011.rtf (Added Oct 12, 2011)

Federal Authorization - P16346T2USFWS Sec 6 bull trout (Added Oct 14, 2011)

Project Description - P16346T1Bonar et al 2000 - warmwater sampling guidelines.pdf (Added Apr 11, 2011)

Project Description - P16346T1McMichael et al 2008 - salmon injuries].pdf (Added Apr 27, 2011)

Status

Application Status: Application Complete

Date Submitted: April 27, 2011 **Date Completed:** October 20, 2011

FR Notice of Receipt Published: November 17, 2011 Number: 2011-29762

Comment Period Closed: December 19, 2011 Comments Received: No Comments Addressed: No

Last Date Archived: April 16, 2012

• ESA Section 10(a)(1)(A) permit (Pacific fish)

Current Status: Issued Status Date: April 16, 2012

Section 7 Consultation: Formal Consultation

NEPA Analysis: Categorical Exclusion

Date Cleared by General Counsel: February 28, 2012

Expire Date: December 31, 2016

Analyst Information:

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Modification Requests

Reports